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General Article

HYPOSODAEMIA

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ST. COLUMB

In an age of "hypos" and "hypers" no apology seems necessary for adding something to our nosology; in fact, hyposodaemia has been somewhat overdue. Sodium has in recent years come into its own and occupies an important place in both physiology and comparative medicine. With its sister potassium it differs from the other biological metals in that all compounds are soluble and are not held up in the body as possible reserves for use in case of emergency—as is the case, say, with iron or calcium—so that the animal becomes dependent on a continuous adequate supply of both from external sources. There does not appear to be any difficulty regarding potassium as it is present in abundance in most foods, but sodium may be almost entirely absent from many, and thus there might arise a deficiency of its salts in the body fluids.

Sodium metabolism has been recently dealt with by Dr. R. A. McCance, F.R.C.P., in the Goulstonian Lectures at the Royal College of Physicians[1] and published in *The Lancet* for March 21st and following issues. The subject is of considerable importance in animal medicine and the chloride salt formed the theme of a paper published in the *Veterinary Record* on July 18th by Mr. Lang, of Brigg. The latter dealt with the subject somewhat promiscuously and the picture seemed somewhat overdrawn. Formerly there was nothing like leather; to-day there is nothing like salt[2]. If enthusiasm runs away with us on occasion not much harm is done as a rule, and little can be accomplished without it. To have popularised the use of the stomach tube in this country is no mean achievement and the saline propaganda as put forth by Mr. Lang will also be of value in directing attention to an important and somewhat neglected therapy.

SODIUM AND POTASSIUM

Dealing generally with the compounds of the above elements, Dr. McCance states: "While the solubility of sodium and potassium salts normally ensures complete absorption from the intestine it carries with it certain disadvantages, for there is no way in which the body can store reserves in an insoluble and inactive form. Although so much alike chemically and physically, sodium and potassium fulfil quite different biological rôles, both animals and plants having universally adopted potassium as the main cellular base and sodium as the extra-cellular ion. The cell membrane, once formed, seems to be almost impermeable to these bases so that cells bathed in a medium rich in sodium may contain none of this element, but all circulatory systems must contain considerable amounts of it and it must be derived from the food. With no reserves a constant supply is important and although periods of deficiency can be survived, the moment the rate of excretion is forced up large amounts must be supplied or very serious consequences will ensue. Plants which have no such extra-cellular systems may contain practically no sodium."

It would thus appear that a sodium deficiency might easily arise in animals suffering in various ways and from a variety of diseases. A lack of sodium must have been one of the earliest of the deficiencies to have troubled vegetable feeders and particularly the sweaters—man and the horse. It is said that men were mining for salt 4,500 years ago at Igidir[3]. It is strange that a third of the twentieth century should have passed before the biological importance of salt received full recognition, so that Lang has been something of a pioneer in this form of therapy.

WATER REGULATION AND SODIUM LOSS

The water regulation of the body is undoubtedly one of the key problems of comparative physiology and it is intimately linked with the metabolism of sodium and potassium and the evolution and function of the kidneys[4].

Animals may be readily killed by too much water. At first there may be diuresis but later anuria or total suppression. The regulation of the metabolism both of water and sodium appears to be under the chairmanship or control of hormones: the first (water) by a hormone from the posterior pituitary, the second (sodium) by one from the adrenal or suprarenal cortex. This latter gives salt an added importance in physiology and therapeutics. The introduction of large amounts of sodium chloride involves movement of both fluids and salts about the body and may have far-reaching therapeutic effects. As above noticed, the composition of cell fluid differs radically from that of those which are extra-cellular; the former contains potassium phosphate chiefly while the latter contain sodium chloride and

bicarbonate and there is practically no interchange of basic ions between the cells and fluids surrounding them. Sodium forms about 94 per cent. of the total bases of nearly all extracellular fluids, the main radicle of sweat being chloride. Sodium deficiency and water loss follow from excessive intestinal secretions—vomition and diarrhoea — from intestinal obstruction and gastro-enteritis, from sweating (in the horse) and retention of the afterbirth and red-water in cattle. In all cases of dehydration sodium chloride becomes necessary, as also in water poisoning.

Experimental Salt Deficiency

Dr. McCance[5] kept four or five students on a salt-free diet for about eleven days, the subjects being also heavily sweated daily. Obvious changes in the facies were noted. The temporal hollows and the cheeks fell in, the eyes became tired and sunken, weight was lost. Anorexia and nausea were prominent symptoms. The water metabolism was not normal and all suffered from cramps, excessive fatigue and a sense of exhaustion. (Does not much of this syndrome remind us of young animals [calves and lambs] with severe diarrhoea, continuous sweating in horses, and vomition in dogs?) There was a considerable loss of chloride during the deprivation period, mostly by way of the sweat and urine and the main source of the lost sodium would have been the extra-cellular fluids. Recovery soon followed the addition of salt to the diet. It was found there was a difficulty in producing diuresis during salt deficiency. It is interesting to note in regard to the sodium hormone of the adrenal cortex, that salt is now being used in the treatment of Addison's disease, which is associated with disease of the adrenals and sodium deficinecy[6]. There is some reason to think that animals, particularly cattle and horses, may sometimes be living with a negative sodium intake and thus definite deficiency and ill-health quickly follow an increased swing of the pendulum. It is astonishing how little sodium is contained in some of the common foods—cereals, potatoes, and green vegetables. According to McCance, a man would have to eat more than twice his weight of potatoes every day to get his physiological intake of sodium, and cereals without salt constitute a most inadequate diet[5].

No salt or compound readily absorbable by mucous membranes can be administered to horses and ruminants in such massive doses as common salt without most injurious effects. These large amounts of salt do not remain in excess in the blood but quickly pass to the body fluids pending removal by the excretory organs—kidneys, sweat glands, and intestines. Circulatory changes induced by the salt may have important therapeutic effects, the chloride fixing toxins, or even acting as a sort of shock therapy. It seems probable, however, that a sodium deficiency may be the actual condition corrected in many cases, just as calcium relieves the symptoms in milk fever.

The benefit, temporary or otherwise, said to follow the intravenous injection of sodium chloride in cases of so-called partial paralysis —or "immobilité"—in young horses may have been due to the sodium improving the general muscular weakness, or myasthenia, so marked in this condition, rather than to the dissolution or dispersal of hypothetical thrombi as claimed by Lang. The nature of this disease, which is common enough in some districts amongst colts, needs investigation. I recently post-mortemed a two-year-old colt, well developed and in good condition, which staggered about as if half chloroformed, or dosed with chloral hydrate, and had been doing so for months. No parasites were found in the intestines nor any disease of the mesenteric artery. The loss of muscular power in these cases may well arise from some deficiency rather than from a primary degeneration or change in the motor neurones, or possibly from some change in the adrenal cortex. In any case a biochemical investigation would be advisable.

References

1, 3, 4, 5 McCance. "Medical Problems in Mineral Metabolism." *Lancet*, March 21st, 28th and April 4th and 11th, 1936.

2 Lang, W. W. "Common Salt and Some Other Agents." *Veterinary Record*, July 18th, 1936.

6, 7 Graham, G. "The Treatment of Addison's Disease with Salt." *Proceedings of the Royal Society of Medicine*, July, 1936.

(*Continuation from succeeding page.*)

The Annual General Meeting, which is in session at the time of writing, is well attended and reflects the marked progress and increasing influence which have been so encouraging a feature of the Association in recent years. Welcomes have been extended to the numerous delegates present, representing foreign associations, government departments and municipalities. The President has delivered an address of exceptional interest and importance, and Captain R. Simpson, of Carlisle, has been elected as the new President, with Mr. Donald Campbell, of Rutherglen, as an equally popular President-Elect. The place of the next Congress has been decided upon, Bournemouth. Undoubtedly the popularity of the present place of meeting and the fact that it is a seaside resort has contributed weight to the claims of the coast for the venue of our deliberations and social gatherings.

Major Dunkin has been selected as the recipient of the much-coveted Dalrymple-Champneys Prize for outstanding contributions to veterinary scientific literature and at the Annual Meeting this (Wednesday) afternoon, received this handsome mark of recognition from the hands of the President,

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FROM SCARBOROUGH

THE "National" has held its Congresses in divers places—in the quiet scholastic atmosphere of Cambridge, in other university towns such as Edinburgh, Aberdeen, Dublin and Belfast, which also have extensive commercial activities; in the busy industrial cities such as Newcastle; amid rural settings, as at Norwich, and at popular seaside resorts such as Torquay, Folkestone and Llandudno. But of all these could we find a better venue than that of Scarborough, upon which Nature has lavished, with such liberality, so much beauty and where man has not been slow to adapt those gifts of Nature for the enjoyment and the health of its patrons?

But beauty and its municipal adaptation to the needs of holiday-makers is by no means all that is required to make a Congress such as ours successful, for many months of careful planning by the Local Committee are essential to provide and execute a programme which will prove satisfactory to our various and varying interests. However, all work and no play would make a Congress but a dull affair and so our leisure time must be catered for and in this connection the hospitality of our hosts is called forth. Hospitality has never been lacking, and never will be, for we are a small profession but our members are to be found in every corner of the country ever ready to welcome professional brethren from afar: thus the family spirit is strong with us. Scottish hospitality is proverbial; so, for that matter, is Welsh, Devon or that of practically any other place where we have gathered together in the past. Yorkshire hospitality enters into the same category, as exemplified once more for all of us who have the pleasurable opportunity of being present here in Scarborough.

The spirit and form of the above introductory comment on this year's Congress is dictated by the experience of the first three days of this great and, as we can already write, phenomenally successful event.

The Congress was opened officially by the Mayor of Scarborough (Mr. Councillor F. C. Whittaker) on Monday morning the 14th inst., in the Public Library; a beautifully equipped building—not as yet officially opened, but kindly lent to us for the purposes of our meetings by the generosity of the Corporation. The President (Captain J. R. Barker) then proceeded to the Harrison Room of the Public Library and formally declared the Exhibition of Drugs, Surgical Instruments, etc., open. This year's Exhibition is in keeping with the Congress as a whole—it has never been bettered; the stands are plentiful and the exhibits tastefully and effectively displayed.

Following the precedent set by the local divisions of the "National" at the two previous Congresses, the Yorkshire Division held an informal "At Home" at the Royal Hotel on Sunday evening, when those of our members who were fortunate enough to be able to arrive here in advance were welcomed by Major D. S. Rabagliati (President of the Yorkshire Division) and Mrs. Rabagliati, whilst other members of the local divisions with their ladies effectually "inoculated" their guests with the spirit of homely welcome, thus assuring the social success of our gathering, which bids fair to be a truly representative one in every sense.

The social side of the Congress was continued on Monday evening when a civic reception and dance was held, by the generosity of the Corporation, at the Royal Hotel at 8.30 p.m. and which continued into the early hours of the next morning.

On Tuesday evening at the same place and time the President of the National Veterinary Medical Association stimulated the already assured enjoyment of the assembly by receiving the delegates and members at his own reception and dance which, as usual, was also a popular and outstandingly successful break from the more serious side of the programme.

The scientific activities of Congress bid well to repeat the successes of previous years. They started in earnest on Monday morning when Mr. H. R. Hewetson presented his paper on "Hysteria in Dogs," which evoked a prolonged discussion of rather inconclusive character, as was perhaps not altogether unanticipated having regard to the complexity of the subject.

Major Rabagliati's paper on "The Administration of the Accredited Producers' Scheme of the Milk Marketing Board" brought forth a really first-class discussion, which will repay, even those who were fortunate enough to be present during the whole of the proceedings, for the time spent in studying it, when the full report appears in the pages of the *Veterinary Record*. This comment applies with equal force to the papers on the public health and scientific aspects of the bovine tuberculosis problem presented by Mr. Torrance and Mr. Glover, respectively, on Wednesday morning.

The ever-popular item of "Operations and Demonstrations" was, as always, an "overcrowded" success, especially that part of the programme undertaken by Professor J. G. Wright, who demonstrated methods of euthanasia in small animals. This section of the proceedings was prefaced by an able address, delivered by Major Dunkin, outlining the activities of the Euthanasia Committee of the "National" and from which it is abundantly evident that the report of that Committee will prove to be a document of the greatest interest and importance, not only to the profession, but to the small-animal-owning community.

(*Concluded at foot of previous page Col.* 2.)

Clinical Communications

THE TREATMENT OF FRACTURES IN THE SMALL ANIMALS BY MEANS OF THE UNPADDED PLASTER CAST*

E. P. BARRETT, M.R.C.V.S.
MARGATE, KENT

Some two years ago, my attention was drawn by Dr. E. E. Burnier, of Margate, to a method of treatment of fractures of bones in humans by unpadded plaster casts. There seemed to be some possibility of this method being helpful in the treatment of similar conditions in dogs and cats, and I have since experimented with it with sufficient success to encourage me to adopt it in the majority of such cases.

Lorenz Böhler, Chief Surgeon and Director of the Vienna Accident Hospital, made a particular study of fractures during and after the Great War, and has recorded his experiences and conclusions based on the examination and treatment of more than 10,000 cases. His book, which was first published in 1929, has been translated into English under the title "Treatment of Fractures." A great deal of this book is occupied with the discussion of particular fractures in the human, and special methods and appliances applicable thereto—but useless for our patients.

He lays down three fundamental rules for the treatment of fractures which are well worth a moment's notice:—

(1) Peripheral fragments must always be placed in the direction in which the central one points.

The anatomical arrangement of the humerus and femur in our animals is such that in fractures of these bones it is rarely—if ever—possible to observe this essential condition.

(2) Every fracture must be completely reduced by traction and counter-traction.

(3) After reduction the fragments must be kept continuously in the right position until firm union takes place.

In cases of diagonal fracture of the shaft of a longbone with displacement and shortening, by old methods of setting although replacement has been achieved by traction and counter-traction, it has often been extremely difficult and sometimes impossible to apply sufficient pressure to prevent reshortening taking place inside the bandage.

The introduction of the unpadded plaster cast has largely overcome this difficulty. It can be moulded exactly to the shape of the limb. It adheres uniformly to the hair and so, while holding the fractured parts, is itself held firmly in position. It is light and strong. The paw is usually not included in the cast, and this has the dual advantage of giving the patient relatively less inconvenience and discomfort, while natural movement of the paw and toes maintains the circulation of the limb more satisfactorily, with consequently better healing.

The preparation of the cast is simple. The length and width of the slab required is arrived at by measuring with a tape measure the portion of limb to be covered. A diagram to these measurements is drawn on paper, and on this a plaster bandage is folded accurately, backwards and forwards, to form a slab of this exact size and of sufficient thickness, generally six to eight layers. This slab is then stitched with milliner's cotton at each end to prevent slipping out of shape during wetting and application to the limb. It is now submerged in warm water, and one must ensure that it is uniformly soaked. The leg being held in position by an assistant, the cast is now applied and gently and carefully moulded with the fingers to the contour of the limb.

Rapid setting of the plaster is of great importance, and I have found the "cellona" plaster of Paris bandage made by Messrs. T. J. Smith & Nephew, Ltd., of Hull, extremely satisfactory—setting firmly in five to ten minutes. When the plaster is becoming firm, attention must be given to the edges to see that they do not turn in unduly. After setting, an open-wove bandage or a few layers of plaster bandage may be applied loosely over the cast and round the limb to protect it from accidental or deliberate damage by the patient. During the next 24 hours a look-out must be kept for swelling of the paw from uneven pressure. If this is slight, it often subsides without interference; if marked, it is sometimes possible to remedy it by relieving the pressure over the main veins of the limb. Occasionally it will be necessary to remove the cast and make a fresh attempt.

A fracture, except in certain unusual conditions, involves pain, which is aggravated by the least movement. Muscular spasm results, involving further displacement. This can be overcome by general or local anaesthesia. Böhler favours local anaesthesia. The skin over the fracture is sterilised with tincture of iodine. Using a sterile hypodermic syringe and needle, the latter is inserted down to the bone, and 1 to 4 c.c. of 2 per cent. novocain, according to the size of the animal, are injected. The syringe is now detached from the needle, and if blood-stained fluid runs out of the needle, it is in the haematoma and 5 to 15 c.c. of novocain solution are injected. If, however, clear fluid returns through the needle, a fresh attempt must be made to enter the haematoma. As all

*Communicated to the Annual Meeting of the South-Eastern Division, N.V.M.A., at Tunbridge Wells, May 16th, 1936.

pain is now removed, the patient, if allowed to do so, would use the limb and might greatly increase the damage, even converting a simple into a compound fracture. In certain circumstances, as in the case of severe shock or multiple injury in a road accident, when general anaesthesia might be unsafe, this method can be and has once been used with success.

In view of the difficulty of controlling our patients during the setting of a limb, I consider that general anaesthesia should be used whenever possible. For this purpose there is, to my mind, nothing so suitable as nembutal given intravenously, or in large dogs, morphia followed by nembutal. I have found nembutal by the intravenous route of equal usefulness and safety in cats.

Cases

I propose now to describe to you a few cases in which these methods have been employed.

A Chow puppy—four months old and weighing 20 lb.—was playing with a companion, when suddenly he cried out and collapsed and was found to have a fracture in the upper third of the tibia. He was anaesthetised with 4½ grs. of nembutal intravenously, and an unpadded plaster cast was applied around the anterior surface of the limb, extending from just above the stifle to the lower third of the metatarsus. After ensuring that circulation in the limb was normal, a plaster bandage was wound loosely round the limb. During the first fortnight there was loss of power in the extensors of the paw and consequent knuckling. A strip of plaster was united to the bottom of the bandage at the back of the limb and carried round underneath the paw, and this kept it forward in the normal position until muscular power returned. The animal wore an Elizabethan collar, as he amused himself by biting off the plaster when left alone. On removal after three weeks, firm union had occurred, and the dog went well on the limb at once.

Last December, a 15-months-old greyhound bitch, while coursing, galloped into a milestone and sustained a fracture of the radius and ulna of the right limb, two inches above the wrist. Unfortunately she continued to course in this condition, and besides converting the fracture into a compound one, the bone perforated the radial vein, resulting in extensive subcutaneous haemorrhage. Nothing was done to protect, clean or support the limb. She was left at my surgery with instructions to save her at all costs. Four hours after the accident, nembutal was given intravenously, to produce deep anaesthesia; the leg was washed, haemorrhage controlled as far as possible, and the skin wound closed with gut sutures. A plaster slab was made, and, while an assistant applied strong traction and counter-traction, was moulded on to the limb anteriorly from the elbow to the lower third of the metacarpus. An open-wove bandage was wound around the limb. For some days there was considerable oedematous swelling of the paw, but this was dispersable by massage. All went well until the tenth day, when the dog was brought back with blood-stained serum running out from the back of the cast on the inner side of the limb. The cast was removed and this revealed a slough at the point where the skin had been perforated, now exposing bone, an inch in length and a quarter-of-an-inch in width. This appeared healthy and in good position. Entozon in glycerin 1 : 500 on gauze was applied to the wound and the leg set in cotton-wool and splints. It was redressed at regular intervals and healed rapidly and uneventfully. The leg was massaged and rebandaged until after five weeks firm union had occurred. Seven weeks after the accident the animal is galloping, shows only slight lameness at the trot and has three-quarter flexion of the wrist. The owner confidently expects to course her again. The point I wish to make about this case is that although the unpadded cast had ultimately to be abandoned, it prevented slipping of the fractured ends and consequent shortening of the limb until union had commenced. I do not think this could have been achieved by any other method.

A five-months-old Pomeranian dog weighing 5 lb. sustained a fracture of the radius and ulna without displacement. As the animal was highly hysterical, nembutal was given intravenously and a plaster cast applied anteriorly. After setting, an open-wove bandage was wound around it. After three days the dog began to use the limb and soon ran on it freely. When removed after three weeks, firm union had occurred.

In so short a communication it is not possible to do justice to the whole of Böhler's system of treatment of fractures. For the same reason I have described only three cases. I can recall 20 fractures treated by this method with complete success. I have aimed at giving some idea of the possibilities of applying the method to our small patients. I hope I have been able to stimulate some interest and that others will give it a trial.

RETENTION OF AGED CATTLE

That cows are not being changed so frequently in the North Lancs. area is a reason put forward by the veterinary inspector for the Blackburn Corporation, Mr. E. J. Burndred, M.R.C.V.S., D.V.H., for the "extremely high percentage of local tubercle-infected milk samples."

Mr. Burndred suggests that the Milk Marketing Scheme has had the effect of causing the retention of older cows (more susceptible to udder infection) giving a greater volume of milk the subsidy of the Cattle Committee for the slaughter of heifers and cow heifers assisting "this vicious process."

SEPSIS

R. F. WALL, M.R.C.V.S.
Boxmoor, Herts.

For the purpose of this communication sepsis should be accepted as a general or local infection caused by a bacterium or virus, and, therefore, as including contagious disease.

One believes that it is the ideal of those who are engaged in this class of research to obtain an antibody that will be more or less active for general use. My experience of a line of treatment I have adopted for the past two years induces me to believe that a step in that direction has been achieved.

To give details of every case would be a voluminous and tedious matter, and having regard to my patience and that of the reader, it is proposed to outline only average cases.

Cases

Case 1. *Subject.*—Bay gelding, heavy draught, six years old; recently purchased from a dealer.

History and Examination.—He had been dull, and had had a slight cough and indifferent appetite for three or four days prior to the time I was called to see him. There was then almost total anorexia; temperature 104° F.; respirations about 60; pulse 70; discharge from the eyes and nose.

Diagnosis.—Equine influenza with the onset of pneumonia.

Treatment and Course.—Ten c.c. "Antibacsyn"* hypodermically. On the second day there was an improvement in the appetite, the animal was brighter in appearance, the respirations were less frequent and the temperature was 105° F. Injection of 10 c.c. "Antibacsyn." On the third day the appetite was good, the respirations were noticeably less frequent; temperature 103° F.; discharges were diminished, and the horse was almost normal in appearance. On the fourth day he would have eaten heartily; respirations were almost normal; discharges very slight, the cough was improved; temperature 100° F. Injected 10 c.c. "Antibacsyn." The fifth day saw the disappearance of the discharges, ravenous appetite, temperature normal, and only an occasional cough. The only other treatment given was a little electuary three or four times a day. The horse was put to walking exercise, and at the end of the fourteenth day was ordered to light work.

Case 2. *Subject.*—Racing greyhound, about 20 months old.

Symptoms.—Anorexia, disinclination to move, dullness, injection of the conjunctival and sclerotic membranes, slight diarrhoea, loss of condition in 24 hours, temperature 105° F.

Diagnosis.—Canine distemper in the early stage.

Treatment and Course.—Four c.c. "Antibacsyn" hypodermically. Second day: appetite returning to the extent of voluntarily taking milk. Four c.c. "Antibacsyn" hypodermically; temperature 104° F.; diarrhoea was less marked, and the dog was brighter. Third day: looking for food; temperature 102° F.; no diarrhoea; dog almost normal in spirits and the loss of condition had ceased. No other treatment was given and complete recovery ensued.

Case 3. *Subject.*—Scottish terrier, about five months old.

Symptoms.—Typical canine distemper picture. Discharge from the eyes and nose, diarrhoea, emaciation, husky cough, temperature 104° F., and great prostration.

Treatment and Course.—Two c.c. "Antibacsyn" hypodermically; flannel jacket to chest, half teaspoonful of whiskey in milk three or four times a day; almost total anorexia. Second day: appetite improved, less discharge from the eyes and nose; temperature 103° F.; 2 c.c. "Antibacsyn" given hypodermically. Third day: difficulty in keeping the puppy quiet; ate heartily of boiled chicken; very little discharge from the eyes and nose; no diarrhoea and condition improving; temperature 101·4° F.; gave 2 c.c. "Antibacsyn." Considered the case at an end, and hear that he is very fit.

Case 4. *Subject.*—Racing greyhound, two years old.

Symptoms.—Typical distemper complicated with pneumonia of the right lung.

Treatment and Course.—Four c.c. "Antibacsyn" daily for three days; milk and radiol diet; flannel jacket to the chest. By the third day he was eating well, the temperature had fallen from 106 to 102·3° F.; the respirations were approaching normal, and the loss of condition had been checked. I anticipated uneventful recovery, but probably through a chill caused by a sudden change in the weather five days later, it was reported that the dog had refused his breakfast. The rate of respiration was noticeably increased, the dog refused to leave his bed, and looked anything but a promising patient. Temperature had risen to 104·2° F. Four c.c. dose of "Antibacsyn" was given at once, and repeated for four successive days. Daily improvement was noticeable, and to my surprise the dog made a rapid recovery.

Case 5. *Subject.*—A female kitten, six months old.

Symptoms.—Dullness; spitefulness when lifted up or touched upon the back; loss of appetite. The owner attributed the condition to her having come into "season," but as she got no better he sought advice. The cause of the trouble was one of the well-known abscesses near the root of the tail. Temperature 104° F.

Treatment and Course.—Two c.c. "Anti-

*We understand that "Antibacsyn" is a product obtained from normal serum by a somewhat complex process, with the addition of broth and certain salts, by which englobulin is salted out.

bacsyn" hypodermically. The following day food was taken voluntarily. The infected area appeared to be more circumscribed. Temperature 103° F. A few days later a small portion of the skin sloughed away; plum-coloured pus escaped and rapid healing followed. In this case I purposely refrained from opening the abscess to see whether the sepsis would extend along the subcutaneous tissue as it so often does.

Case 6. *Subject.*—A grey pony, five years old.

Symptoms.—A hot, painful swelling with numerous papules extending from the withers to the point of the off shoulder. Dullness; anorexia; staring coat; slightly increased respiration; temperature 103° F.

Diagnosis.—Acute acne.

Treatment and Course.—Ten c.c. "Antibacsyn." Only bran mashes to be given. Second day: swelling reduced, and papules smaller; temperature 102° F.; appetite improving; 10 c.c. hypodermically. Third day: swelling had disappeared; papules almost gone; appetite good; temperature 99° F. Fourth day: only a few dry scales visible. Pony normal and ordered to be put to light work the following day.

Case 7. *Subject.*—Bay cob, about ten years old.

Symptoms.—Hot painful swelling upon the withers. It had been increasing in size for three or four days and apparently contained pus.

Treatment and Course.—Ten c.c. "Antibacsyn." Second day: less painful and more defined. Injected 10 c.c. "Antibacsyn" into the neck. Third day: less painful, obviously smaller. I intended injecting another 10 c.c. "Antibacsyn" but he was very difficult to handle, so I decided to await results. The owner worried me for local treatment, so to pacify her I prescribed coloured ung. zinci oxid. to be applied twice a day. In about eight days the swelling had disappeared. Several days later I was again called to the cob on account of the development of several small pustules along the crest a little higher than the withers. I gave another 10 c.c. "Antibacsyn," the cob was turned out for a fortnight, and no further trouble ensued.

The question arises: "Has 'Antibacsyn' approached the ideal in the treatment of septic conditions in the broadest sense, or are the results due to other causes that have not been apparent to me?"

It is reported that a virus disease for the control of the rabbit pest has been successfully employed in experiments by Sir Charles Martin at Cambridge University.

The experiments were carried out at the request of the Australian Government, and are to be continued in Australia.

By placing a drop of the virus under the eyes of one rabbit, Sir Charles Martin destroyed a whole warren in five weeks. Only rabbits are attacked by the disease, but whether it can be spread to neighbouring colonies still has to be established.

Abstracts

[Brucella abortus Infections in Man Reported in Germany during the Period October 1st, 1934 to September 30th, 1935. (Trans. title.) *Reichsgesundblatt.* (1936.) 559.]

During the period from October 1st, 1934, to September 30th, 1935, 513 infections in human beings, diagnosed as due to *Brucella abortus* on the basis of serological tests, were reported. This total did not differ significantly from the figures for the years 1929 to 1933 and showed no evidence of an increase in infection of human beings with this organism.

As in earlier years, the greater proportion of the infections (397) were found in males, a smaller number (112) being found in females. In both sexes most infections occurred in middle age. No deaths and no abortions were attributable to *Brucella abortus*.

One hundred of the infections were attributable to contact with aborting or infected cows, and 168 to the consumption of raw milk or milk products. In 65 other cases it was known that both contact with infected cows and consumption of raw milk had occurred, but it was not possible to say which was the cause of the infection. Two were laboratory infections. In the remaining 178 cases, the cause was unknown or the data insufficient.

By far the greater number of affected persons were engaged in agriculture, milk production or associated pursuits; that is to say, where they came into the most frequent and closest contact with infected cows. Infection occurred eleven times in veterinary surgeons. The total number of sera examined for brucella antibodies is not given.

A. W. S.

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[Comparative Observations on Streptococci from Human Gastro-intestinal Ulcerations and from Bovine Mastitis. Torrey, J. C., and Montu, Elizabeth. (1936.) *J. Infect. Dis.* **58.** 1. 105-114.]

This comparative study of the Bargen diplococci associated with ulcerative colitis and Saunders' streptococci found in cases of gastro-duodenal ulceration in man with bovine mastitis streptococci, has failed to confirm the findings of Bargen and Saunders.

The authors found that neither the Bargen strains nor the Saunders streptococci formed homogeneous groups; they consider them as variants of the enterococci group. However, two Bargen strains showed close serological relationship to a type Saunders strain.

Only exceptionally was any biochemical or serological relationship seen between these two groups and *Streptococcus mastitidis*. Three mastitis strains (not *Str. mastitidis*) showed

biochemical and serological relations to organisms of the above groups, suggesting that intestinal lesions may occasionally be invaded by streptococci of bovine origin.

D. L. H.

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[Staphylococcus Food Poisoning. Report of a Small Milk-borne Epidemic. Shaughnessy, H. J., and Grubb, T. C. (1936.) *J. Infect. Dis.* **58.** 3. 318-323.]

This small epidemic involved some 25 persons. In all cases the clinical picture consisted of nausea, cramps, vomiting and diarrhoea approximately four hours after consuming milk or ice cream. All the cases consumed milk or ice cream derived from the same three cows. Milk samples gave a positive bromthymol blue test, suggesting the presence of mastitis. Cultures from the milk showed yellow and white staphylococci. No organisms of significance were isolated from the patients, neither did their blood sera contain agglutinins against the usual food poisoning organisms.

Feeding experiments with filtrates from different strains of the isolated staphylococci were made on monkeys. Positive results were obtained with filtrates from a smooth white haemolytic strain. A filtrate from this strain also caused the typical syndrome in a human volunteer.

D. L. H.

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[Passage of Fluids through the Ruminant Stomach. III.—The Effects of Volume of Fluid and the Site of Stimulation on the Reflex Closure of the Oesophageal Groove. Ross, C. I. (1936.) *Aust. Vet. J.* **12.** 4-8. (4 refs.).]

It has been previously shown that copper sulphate stimulates the closure of the oesophageal groove and thus enables fluids to reach the abomasum more easily, although in many cases a proportion of the solution enters the rumen and reticulum. The author has studied this delay in the effective closure of the oesophageal groove and also the influence of the volume of fluid on the amount of copper sulphate which enters the abomasum.

The experiments were carried out on sheep and lambs which were drenched with varying amounts of copper sulphate solution mixed with methylene blue and the distribution of the dye determined on *post-mortem* examination. It was found that when such mixtures were given by means of a stomach tube, all the dye was found in the rumen and reticulum and also that the administration of unstained copper sulphate solution, followed immediately by stained copper sulphate solution, did not alter the distribution of the dye. This was not the case when sheep were dosed by the mouth in the ordinary way and it was concluded that the prevention of contact of the copper sulphate solution with the mucous membrane of the mouth and pharynx eliminated closure of the oesophageal groove.

This was proved to be correct, since merely swabbing the animals' mouths with copper sulphate solution and then immediately dosing them with a watery solution of methylene blue was followed by the entrance of the major part of the dye into the abomasum. Further experiments showed that the proportion of the dye entering the rumen and reticulum tended to be greater as the volume of the solution given was decreased. The author considers that the strength of copper sulphate solutions used for anthelmintic medication could safely be increased from 2 to 5 per cent., the dose varying between 5 c.c. for four-month-old lambs to 20 c.c. for adult sheep. [These doses correspond to those recommended by McEwen, A. D. (1935.) *J. Comp. Path.* **48.** 218.]

J. A. N.

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[Distribution of Haemolytic Streptococci.* Hare, R.]

The streptococci giving areas of β-haemolysis on blood agar are responsible for a variety of diseases in man and animals but also occur very frequently as apparently harmless saprophytes. Much evidence shows that all these organisms do not form one species but can be split into nine or more different groups by their morphology, precipitin reactions, and biochemical methods. Lancefield, Edwards, Plummer and Hare have thus shown that the majority of strains from definite infections in man form one homogeneous group (Group A); that the majority of strains from bovine mastitis fall into a second group (Group B); and that strains causing such infections as adenitis in guinea-pigs, endometritis in mares, and some cases of bovine mastitis fall into a third group (Group C). Strains falling into the remaining groups seldom, if ever, cause acute infections in man or animals, although some strains of Group F may be associated with human respiratory infections.

Thus only haemolytic streptococci with the characteristics of Group A can be regarded as potentially pathogenic for man. But such strains have a much more limited distribution in Nature than is usually supposed. In a survey, recently carried out, only about one-third of the haemolytic streptococci found in the human naso-pharynx were shown to belong to Group A; strains belonging to this group were not found in normal human faeces; they were absent from the vagina before or after delivery in normal parturient women; they occurred rarely on the skin of the hands, and never on the skin of the back or peri-anal region; although they were

*Abstracts of communications made to the Second International Congress for Microbiology, London, July 25th-August 1st, 1936.

present in the dust and air of wards in which infected cases were being nursed, they were not found in the neighbourhood of clinically uninfected persons.

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[Streptococcus agalactiae.* STABLEFORTH, A. W.]

In an earlier report I showed by precipitation, slide-agglutination and absorption tests that *Str. agalactiae* (our Gp. I mastitis streptococcus, Lancefield's Gp. B) contained three main types, a, b and c.

Since 1932, 1,200 strains have been examined. A large proportion fell into types a, b and c; two sub-types, a_2 and c_2, were discovered.

In a self-contained herd, most—often all—infections are of one type. Where this is type a, the incidence is usually lower but the disease more severe than with c. Most strains from samples from practising veterinarians were type a. Types a and c are about equally distributed; type b is uncommon, but causes severe disease.

All of 30 strains of *Str. agalactiae* from Austria, Switzerland, Denmark and Germany were of type a or b.

Comparison of Lancefield's (1934) types of her Gp. B (*Str. agalactiae*) showed that her types Ia and Ib are distinct from ours, whilst her types II and III are allied to types a and c respectively, though not identical. Stewart (personal communication) finds that Australian strains fall into the same broad types as ours, but are not identical.

There are thus certain main types of *Str. agalactiae*, readily distinguished and probably of epidemiological significance. Within these are sub-types which can only be certainly recognised by "mirror" tests necessitating serum for each strain.

[The question of nomenclature for types of *Str. agalactiae* is discussed.]

Slide agglutination and the group precipitation method using a ring test, both at room temperature, are quick and reliable methods for the routine identification of *Str. agalactiae*.

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[Biology of Inflammation caused by Yeasts and Fungi.* PRIBRAM, E.]

The result of the growth of yeasts and fungi in animal tissue is the granuloma. Its origin can be explained by the biology of the invaders. They need: oxygen, phosphates, which form 50 to 60 per cent. of the inorganic ash, potassium, calcium, magnesium, sodium and manganese. The organic substances which they utilise are in the first place glucose and proteins. Their parasitic metabolism therefore deprives the human tissue of important nutrient material, thus causing a local deficiency of oxygen and glucose, which are both necessary for tissue respiration. Cells which can adapt themselves to these conditions replace those which, rich in protoplasm, need oxygen. Cells of the reticuloendothelial system are the only ones which have this ability. By contracting and elongating their protoplasm they form, *gradatim*, histiocytes, fibroblasts, and eventually connective tissue fibres. This contraction of their volume increases their surface, enabling them to absorb even the smallest amounts of oxygen. There is, however, no tendency to form scar tissue, which is the case in secondary proliferative inflammation, because of the presence and the continuous growth and decay of the parasitic cells, which, as we know, can live on their own cells. They not only irritate the surrounding tissue, but they provide it with sufficient water to prevent dehydration. The "granuloma," as we call the newly-formed tissue, may contain necrotic areas. It is, however, as a whole, a living, proliferating new growth, growing at the expense of the original tissue cells and resembling in this respect the malignant new growth.

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[The Pathogenic Action of the Common Thrush Fungus in the Rabbit.* SHREWSBURY, J. F. D.]

The author's experimental observations on the rabbit with the common thrush fungus, variously known as *Saccharomyces*, *Oidium*, or *Monilia* (*Candida*) *albicans*, establish the fact that this fungus is lethal for the rabbit under certain conditions. The necessary conditions are inoculation by the intravenous route in doses of a magnitude not less than 60 million living fungus cells per cubic centimetre of inoculum. Different strains of the fungus vary somewhat in their minimum lethal dose, but all are innocuous by any route other than the intravenous. Death is considered by the author to be due to a combination of shock—occasioned by the mycotic embolaemia—and absorption of toxic fungal proteins from the broken-down fungus cells. The kidney is the organ constantly and chiefly affected by the embolaemia, and renal dysfunction is a final sequel if the animal survives the initial embolic shock. Fungal emboli have been demonstrated, however, in most of the organs of the body and also throughout the voluntary musculature. The fungus is incapable of progressive multiplication in, or invasion of, the body tissues of the rabbit, and all attempts to infect that animal by the natural routes were unsuccessful. Sublethal doses of the fungus occasion a progressive loss of weight in the inoculated animal, which is not associated with any constant or distinctive alteration in the blood picture, or with any detectable disturbances of function. The fungus cells behave simply as irritant foreign bodies in the tissues and evoke merely a non-specific cellular reaction, composed mainly of small round cells without giant-cell formation, which is restricted to the immediate vicinity of the fungal embolus.

Report

[What is the Quality of the Milk Supplied to School Children? Report of a Survey by the People's League of Health. May, 1936.]

In 1932 the People's League of Health published a full report on bovine tuberculosis, with special reference to the milk supply and the risk of human infection through milk. The opinion was expressed that the only classes of milk which can be considered safe from the risk of conveying tuberculosis are:—

(*a*) Milk obtained from herds certified under adequate control to be free from tuberculosis.

(*b*) Milk which has been subjected to efficient and controlled pasteurisation or other approved process of heat treatment.

The present document presents the results of an enquiry directed to the discovery of the qualities or grades of milk which are being supplied to children in the elementary schools. The facts show that there is still need to insist on the risks which attend the use of raw milk and on the protective value of efficient pasteurisation.

The figures quoted below as a basis of this report were collected as a result of a questionnaire addressed by the People's League of Health to School Medical Officers of Health in England and Wales and in Scotland. The returns for England and Wales were from 243 areas, including 1,760,241 children; those from Scotland were from 22 areas, including 330,422 children. The types of milk supplied are for the purpose of this report grouped under two headings. *Group* 1 includes: Certified and Grade "A" (T.T.), pasteurised, sterilised and boiled; these milks are termed "protected" milks in the sense that the possibility of the conveyance of disease is practically excluded. *Group* 2 includes: raw milk, in which no particular precautions are taken to prevent the conveyance of disease, and Grade "A," in which the precautions, though not without value, are considered inadequate. The figures given are summarised as follows:—

England and Wales

Number of children receiving Group 1 (protected) milk	1,405,116
Number of children receiving Group 2 (unprotected) milk	355,125

Scotland

Number of children receiving Group 1 (protected) milk	327,557
Number of children receiving Group 2 (unprotected) milk	2,865

Thus of the 2,090,663 children dealt with under the enquiry, 269,258 are receiving raw milk with the risks that it involves, and 88,732 are receiving Grade "A" milk, which though a clean milk, is not obtained from tuberculin-tested cows.

In order to emphasise the dangers attendant on the consumption of certain milks a survey was made by means of a questionnaire addressed to Local Health Authorities. It was learned that during the years 1930-1935:—

Of 5,274 specimens of Grade "A" milk which were tested, 295, *i.e.*, 5·59 per cent., showed the presence of tubercle bacilli.

In reference to similar tests applied to raw milk, the results were that of 37,920 specimens examined, tubercle bacilli were present in 2,799 instances, that is, 7·38 per cent.

The League is most anxious to encourage the use of milk as a food particularly for children, but the milk must be a *safe* milk, that is, milk which is made secure from the risks of tuberculosis and other infections. They have issued this report because they feel bound to impress the position on official and public attention.

R. L.

RAPID GROWTH OF MILK BARS

"One of the minor changes in social habits which must gratify the Ministry of Agriculture and the Milk Marketing Board is the increased consumption of milk due to the growth of milk bars," says *The Times*. "How much it amounts to cannot be computed, but it must be hundreds of thousands of gallons.

"There are now more than 450 milk bars throughout the country, of which 100 are in London. New bars are being opened almost every week; they cater for both a summer and winter trade, and the movement is sufficiently important to justify the Milk Marketing Board having a Milk Bar Advisory Department.

"Stalwart young men think nothing of standing at a milk bar and drinking glasses of milk, or thirst-quenchers of which milk forms the basis. There are 50 different non-alcoholic drinks with milk as a constituent—malted milk, yeast milk, milk cocktails, milk punch, egg and milk, milk soups, milk hot, and milk iced.

"These milk bars are to be found in all parts of London, dainty and attractive in appearance. There are half-a-dozen between Ludgate Circus and Charing Cross, including two in the Strand. They have invaded the cinema; they have attracted the attention of sympathetic Members of Parliament; and but for difficulties of space there might be one at Westminster. A syndicate has been formed to open 500 milk bars in and around London."

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The Council of the Royal Sanitary Institute have accepted an invitation from the Birmingham City Council to hold the Health Congress at Birmingham from July 12th to 17th, 1937.

Review

[**Bernhard Bang: Selected Works.** Edited by Vald. Adsersen, Professor at the Royal Veterinary and Agricultural College, Copenhagen. (1936.) Levin & Munksgaard, Ejnar Munksgaard, Copenhagen; Humphrey Milford, Oxford University Press, London. Price 30s.]

Bang's literary activities were extensive and very comprehensive. A full list of his writings is to be found in the publication (Festkrift til Bernhard Bang, Kobenhavn, 1928) made by his pupils and co-workers to commemorate the eightieth anniversary of his birth. They commenced with his studies of actinomycosis published in 1883 and ended in 1932 with a paper entitled "Uber die Bedeutung der Enteckung die Tuberkelbacillus für die Bekämpfung der Haustiertuberkulose," published a few months before his death, in which he reviewed the main lines of his pioneer work in the campaign against tuberculosis in cattle.

The works included in the present selection have been divided into three groups, in each of which they are arranged in chronological order. Many papers which originally appeared in Danish are translated into English or German.

The first group comprises Bang's investigations on actinomycosis, bovine mastitis, infections caused by the necrosis bacillus (*F. necrophorus*), endocarditis in swine erysipelas, epizoötic abortion of cattle (the cause of which is still widely known as Bang's bacillus), Johne's disease and tuberculous abortion.

The second group comprises three papers dealing with his classical work on tuberculosis of the udder and on tuberculous milk.

The third group comprises a selection of his writings on tuberculin and its use in the method of combating tuberculosis of cattle, which he initiated in 1892 and which bears his name. His writings are evidence of his indefatigable efforts to create an interest in the struggle against tuberculosis and in its eradication according to those principles which he had proved to be correct.

The volume as a whole reflects the breadth of Bang's investigations and his direct, but unpretentious manner of presenting them. The type is good and, apart from the fact that the pages are uncut, the publishers' part is in general well done.

That a department of animal health be established under the surveillance of the Royal College of Veterinary Surgeons, was the suggestion made by Mr. George P. Male, M.R.C.V.S. (past-president of the Royal College of Veterinary Surgeons) who spoke at Job's annual "Clean Milk" luncheon held recently at the Dairy, at Hanworth.

N.V.M.A. Divisional Report

SOUTH-EASTERN V.M.A.*

ANNUAL MEETING AT TUNBRIDGE WELLS

The Annual Meeting of the South-Eastern Division of the N.V.M.A. was held in the Castle Hotel, Tunbridge Wells, on May 16th, 1936. The retiring President (Dr. A. D. McEwen) occupied the Chair and there were present the following Fellows: Messrs. E. P. Barrett, J. Bell, J. G. Cattell, C. Crowhurst, J. B. Dier, H. Gooch, H. P. Hogben, T. F. Hogben, L. Hughes, F. Marks, F. Crowhurst, E. Wemys Morton, C. W. Perrin, J. W. Pritchard, L. P. Pugh, C. Roberts, C. Rose, A. Spicer, H. Taylor, F. B. O. Taylor, A. Whicher, S. B. Vine, and T. Dalling (Hon. Secretary). Messrs. J. H. Mason and W. P. Blount attended as visitors.

The minutes of the previous meeting were read and signed as correct.

Fellowship.—Mr. A. Thomson, M.R.C.V.S., was nominated and Mr. C. W. Perrin, M.R.C.V.S. (Folkestone), was elected a Fellow of the Division.

Secretary's Report

Mr. T. Dalling then presented his report, as Hon. Secretary, in the following terms:—

Three meetings have been held during the year. The Annual Meeting took place on April 30th at the Castle Hotel, Tunbridge Wells, with Mr. Spicer (the retiring President) in the Chair. The meeting was only fairly well attended, there being present 14 Fellows and two visitors. After the business of the meeting had been dealt with the President vacated the Chair in favour of the newly-elected President, Dr. A. D. McEwen. Following this, Dr. McEwen delivered his Presidential address which took the form of a talk on the control of the more common contagious diseases of cattle.

The Summer Meeting was held at the Greyhound Racing Association's kennels at Northaw, Herts., by kind invitation of the Directors. This was arranged by Mr. J. K. Bateman, one of our Fellows, who is in charge of the kennels at Northaw and who conducted the party round. A most interesting time was spent, first of all in the surgery examining X-ray photographs, etc., and then at the kennels where, amongst other things, the method of mixing food for the greyhounds was demonstrated and the general routine explained. The Fellows and their ladies were then entertained to tea by the courtesy of Colonel Cameron, of the Greyhound Racing Association. The Hon. Secretary proposed a sincere vote of thanks to Colonel Cameron and Mr. Bateman for the very enjoyable and interesting afternoon, to which Colonel Cameron briefly replied.

The third and last meeting of the year was held in February of this year at the Castle Hotel, Tunbridge Wells, at which there was a record attendance—27 Fellows and three visitors. The meeting took the form of short papers on clinical cases presented by several Fellows, each being followed by animated discussion. After tea a

*Received for publication August 21st, 1936.

long discussion took place with regard to the filling up of the questionnaire issued by the N.V.M.A. on the subject of "Free Treatment."

The membership of the Association now numbers 58, including our five honorary members.

Election of Officers

Dr. McEwen now vacated the Chair in favour of the new President (Mr. F. Crowhurst, M.R.C.V.S., Marden, Kent). Mr. C. Roberts proposed a vote of thanks to Dr. McEwen for his work as President during the past year, and this was accorded with loud applause. The following were then elected office-bearers for the ensuing year:—

President.—Mr. F. Crowhurst.

Vice-Presidents.—Dr. A. D. McEwen, Messrs. A. Spicer, H. P. Hogben, C. Crowhurst, E. Ebbetts and J. G. Cattell.

Hon. Secretary and Treasurer.—Major T. Dalling.

Council.—Messrs. Crowther, Dier, Gillard, T. F. Hogben, Marks, Morgan and C. Roberts.

Representatives on Council, N.V.M.A.—Major G. W. Dunkin, Mr. A. Spicer and Hon. Secretary.

Hon. Auditors.—Messrs. H. Taylor and A. Whicher.

Representative on V.V.B.F. Council.—Major G. W. Dunkin.

Finance.—It having been reported that the finances of the Division were satisfactory, the Secretary referred to the balance in hand and suggested that some of the money should be disposed of. After some discussion it was resolved to send £10 10s. 0d. to the Victoria Veterinary Benevolent Fund and £5 5s. 0d. as a donation to the R.C.V.S. Library Fund.

R.S.I. Congress.—A letter was read from the Royal Sanitary Institute asking the Division to send a delegate to its Annual Congress. It was decided that a delegate be sent and that the matter be left in the hands of the President and Hon. Secretary.

Presidential Address

The newly-elected President, Mr. F. Crowhurst, then addressed the meeting, as follows:—

I must first thank you for the honour you have conferred upon me in choosing me as your President for the ensuing year, and express the hope that with the assistance of our esteemed Secretary, who has promised to help me in every way, I shall be able to fulfil the duties to your satisfaction.

I have been asked to make brief my few remarks. In the first place, I may say that I think the strides that have been made in our profession lately have been rather remarkable. I viewed with great concern the appointments carried out in various counties, that of whole-time men. I must say that it makes a great difference to those with small country practices, and I think that if we had at hand a more universal scheme of charges it would have made a difference in some districts, but we must go with the times and although I personally will feel it, I think we have got to grin and bear it. There is only one thing I should like to add and that is the desirability of more co-operation between whole-time men and practitioners, not only county men but also the staff of the Ministry of Agriculture. Also with regard to the clinics which are springing up all round us, I should like to see some steps taken to prevent the performing of surgical operations by unqualified persons. I feel rather strongly on this point, because of the suffering I feel sure some dumb animals are put to, especially by persons over whom we can exercise no control. Concerning the supply of biological products to persons outside the veterinary or medical professions, I know our "powers that be" have an immense amount of work to do and probably this would entail more.

I should like to refer to the difficulty we have sometimes in obtaining a second opinion. General practitioners are too busy and the professors from the College are difficult to get at once, and also the expense is often too great. I do not know whether there was ever any scheme prepared for a list of charges in general, but I think it would be a great help if some such scheme could be drawn up as a guide, and practitioners could frame accordingly, as charges vary very largely in districts.

There is just one more point I should like to raise, and that is the duties that are carried out by the sanitary inspector with regard to meat inspection. It seems to me that the proper person to perform this work should be the veterinary inspector, who is, to my mind, the man best qualified to undertake it.

Poisons and Dangerous Drugs Acts.—The next item was a talk by Professor J. G. Wright on the Poisons and Dangerous Drugs Acts. Professor Wright explained the terms of these Acts and especially those portions concerning veterinary surgeons. A short discussion followed and Professor Wright replied to the various questions raised.

Communication.—Mr. E. P. Barrett (Margate) then read a communication on "The Treatment of Fractures in the Small Animals by Means of the Unpadded Plaster Cast." Both Mr. Barrett and Professor Wright replied to points raised by several members. [Mr. Barrett's contribution is reproduced in the Clinical Communications Section of this issue.—*Editor.*]

Veterinary Services in South Africa.—Lastly, Dr. J. H. Mason (S. Africa), a former Fellow of the Division, gave an interesting résumé of veterinary services in South Africa.

Votes of thanks to the various contributors concluded the meeting, after which the members met for tea.

T. Dalling, *Hon. Secretary.*

From The Veterinarian

September, 1836

FORMATION OF THE VETERINARY MEDICAL ASSOCIATION*

A sufficient period for reflection and reconciliation having been granted to the agitators in the old London Veterinary Medical Society, and without avail, some of its former members have bethought them whether it is not time to think of the welfare of the student and of the profession; and to endeavour to bring good out of evil, by the formation of another and a better association; one that shall consist—what was often wished for, but could not have been accomplished in the other—of practitioners and students, and offering to the latter advantages that cannot be too highly prized. The meeting to be held once in every week in the Theatre of the College. The first evening after the reading of the paper to be considered as the students' evening, and to be spent in the same profitable manner which has long been usual. The author of the paper to have to defend the anatomical and physiological portion of it against all opponents, and the fair and good-tempered but thorough badgering and sifting of the respondent and each other still take place.

On the same evening in the next week, the meeting to consist of practitioners and of students: the paper again to be read, and a discussion to take place, resembling that in the other medical societies in the Metropolis—or in that which was once so pleasantly and profitably held in Nassau Street.

The entrance fee to .be the same as in the former society—the fines, on students at least, the same—and the certificates of merit the same.

Mr. Coleman has consented to become the Patron of the Society, and Mr. Sewell the President; and besides a great many students the following have declared their wish to form a part of so laudable an institution:—Messrs. Ainslie, Braby, John Field, William Field, Langworthy, Marshall, Mayor, Mayer, Jun., Morgan, Sibbald, Charles Spooner, Symonds, James Turner and Youatt. It will be necessary merely to read this list of names, in order to be assured of the character, usefulness and stability of such an institution.

The promises of books to the amount of at least thirty volumes as the nucleus of a future library, have also been received. As soon as the intention of the establishment of such a society has become known to the profession at large, a meeting will be called to arrange the rules and regulations of it, and then it will be the fault of its members if it does not live for ever.

We use no solicitation—let the thing speak for itself; and we will only say—let our brethren in the Metropolis or in the country, who are disposed to enlist in so good a cause, communicate (post paid) with Mr. Morton; or if they will occupy one of their pages with a case, or a hint, or anything that concerns the welfare of the profession, the resident editor of this journal will be most happy to take charge of the letter.

*As our readers recently have been reminded, the Royal Veterinary College Veterinary Medical Association may be regarded as the parent of the renowned veterinary organisation now, and for many decades past, known as the Central Veterinary Society. This extract recounts an important stage in the process of transition of the London Veterinary Medical Society, *via* the R.V.C. Veterinary Medical Association, to the "Central." As a result of these preliminaries, the "Veterinary Medical Association" became more firmly established at the Royal Veterinary College than did its predecessor, prior to its eventual reorganisation and transference to other quarters in the Metropolis.

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

Sept. 21st.—Meeting of the Editorial Committee, N.V.M.A., at 2, Verulam Buildings, Gray's Inn, W.C.1, 4 p.m.

Sept. 21st, 22nd.—Jubilee Memorial Bursary Examination.

Sept. 29th.—Meeting of the Southern Counties Division, N.V.M.A., at Aldershot, 3 p.m.

Oct. 2nd.—R.A.V.C. Old Comrades' Association, Annual Re-union Dinner, Anderton's Hotel, Fleet Street, E.C.4, 7.30 p.m.

Oct. 2nd.—Meeting of the North of England Division, N.V.M.A., at Northallerton

Oct. 9th.—General Meeting of the Mid-West Division, N.V.M.A., at Trowbridge, 2.15 p.m.

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PERSONAL

Appointments.—In succession to Mr. Hugh Ferrier, M.R.C.V.S., who is to retire under the Corporation superannuation scheme, Mr. Andrew Spreull, Jun., M.R.C.V.S., has been appointed Veterinary Inspector for the City of Dundee. Mr. Spreull, who is a native of Dundee, is the son of one of the best-known members of the veterinary profession in the city.

Mr. Spreull, who is 30 years of age, was educated at Dundee High School and the Royal (Dick) Veterinary College, Edinburgh, where he gained distinction as a student.

Following farming experience on his father's farm, Westhaugh, near Stanley, he assisted veterinary surgeons in Norfolk and Hereford. He gained county experience in Fife, and in 1931-34 was stationed at Belfast. He had under his care one of the largest milk herds in Northern Ireland, and assisted the Ministry of Agriculture in quelling foot-and-mouth disease.

Mr. Spreull has also assisted the part-time veterinary inspectors of Peterborough, Kelso, and Driffield, and for the past two years he has assisted his father. Four months ago he married Miss Mina Lorimer Thomson, of Dundee.

Mr. F. D. Boughey, M.R.C.V.S., of Exeter, has been appointed as a veterinary officer by the East Suffolk County Council.

. . . . .

Mr. J. A. Griffiths, F.R.C.V.S., Colonial Veterinary Service, sailed September 9th for Nigeria on termination of his leave.

R.C.V.S. OBITUARY

Sparrow, Edwin Charles, 38, Alwen Avenue, Birkby, Huddersfield. "Existing Practitioner." Died September 10th, 1936, aged 78 years.

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ARMY VETERINARY SERVICE

London Gazette—War Office—
Territorial Army

September 11th.—J. C. Beaumont (late Offr. Cadet Univ. of Lond. Contgt. Sen. Div., O.T.C.) to be Lieutenant (September 5th).

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GRASS SICKNESS IN SCOTLAND

The Diseases of Animals Committee of Aberdeen County Council, at a meeting on September 4th, unanimously agreed to make a representation to the Association of County Councils in Scotland with a view to that Association urging on the Government, as soon as possible, the desirability of giving a substantial grant to promote investigation on an extensive scale into the subject of grass sickness among horses.

The Earl of Caithness, Convener of Aberdeenshire, expressed himself as well pleased at the action which the committee had taken, remarking that when a matter was brought before the Association from a responsible committee of the County Council it strengthened one in speaking on the subject, as he intended to do at the first meeting of the Association.

Mr. George Howie, F.R.C.V.S., Chief Veterinary Officer for Aberdeenshire, brought the matter before the committee in a report which he submitted, stating that this year there had been no fewer than 262 cases of grass sickness among horses in Aberdeenshire, and of the horses affected only 28 were still alive.

This was the worst year they had had.

A member pointed out that although the matter had been brought to the notice of the Agricultural Research Council, a good deal more money was required to have the investigations carried out on a much more extensive scale.

Lord Caithness said the question of money had been raised in the House of Commons, and he believed the Association of County Councils in Scotland might bring influence to bear on the Government in connection with that very important matter.

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LEGAL NOTES

Failure to Isolate Scabbed Sheep.—"Considerable efforts have been made by the West Riding veterinary officers to stamp out sheep scab, and they look to farmers to isolate infected sheep," said Superintendent Cockroft when Esther A. Sykes, widow, of Wessenden Lodge, Marsden, was summoned for failing to isolate six sheep infected with sheep scab.

Defendant stated in a letter that the sheep were kept under detention "to the best of my ability," but owing to the grass in the paddock being exhausted they were starving and jumped the fence into the field. She had continually placed them back in the paddock. Defendant added that the sheep had been cured of scab for a considerable number of weeks.

Superintendent Cockroft said it appeared that the sheep had been certified as suffering from sheep scab, and a notice setting out the conditions in respect of isolation was served on the defendant on June 11th. A West Riding veterinary officer revisited the premises on August 7th and was surprised to find that the sheep had been allowed to stray. On August 8th, P.-c. Bradley saw the defendant at her home, and she told him that four of the sheep were fastened up, one had died, and the other two were in a field. There was access from this field to other fields. When told she would be reported, the defendant said, "They were short of food and kept breaking out. What could I do?"

Mr. Donald Sinclair, M.R.C.V.S., West Riding veterinary officer, told the court that he had not certified the sheep as being cured.

The Bench imposed a fine of £5, with £1 11s. 6d. costs.

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Swine Fever Regulations.—In a case at Axminster in which a farmer was fined for failing to cleanse and disinfect a vehicle used for the conveyance of animals, a police superintendent stated that he understood that the Ministry of Agriculture were seriously concerned about the number of swine fever cases in the country and that inquiries were being made with the view of the adoption of more stringent regulations. The superintendent added: "If such regulations are brought in many farmers and stock owners have only themselves to blame, because not half of them take the trouble to comply with the existing orders, which were introduced for their own benefit."

Defendant, writing apologies for absence, because he was busy with the harvest, admitted the offence, and pleaded ignorance, adding that he did not look at the notice served on him.

Police witnesses stated that defendant brought three pigs into Axminster market and was served with a notice to cleanse and disinfect the vehicle, but did not do so. Defendant had also failed to make an entry in his movement of animals record book.

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When a Maltby defendant was fined for having failed to give notice of suspected swine fever and also for omitting to keep a register of the movement of swine, the Chairman of the Rotherham West Riding Police Court expressed the opinion that allotment holders should not be allowed to keep pigs, except under the control of the local authority.

Mr. J. G. Lennie, inspector of the Ministry of Agriculture and Fisheries, said there were six other outbreaks of swine fever on the Muglett Lane allotments, where defendant kept his pigs and the allotments had to be closed. Many markets, including Doncaster and Worksop, were affected.

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THE BRITISH ASSOCIATION

The British Association for the Advancement of Science, meeting at Blackpool, resolved itself into 13 sections on September 10th, and in this and succeeding issues publication is or will be made of résumés of a selection of the resultant discussions.

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Grouping of Mankind

An important joint discussion took place between the Zoologists and Anthropologists on "Genetics and the race concept."

Professor Fleure deprecated the use of the term race, but suggested that bundles of characters tended to remain associated in human groups.

Dr. Huxley maintained that modern genetics with its concept of recombination, had made untenable the classical concept of race in anthropology. Man's evolution was reticulate, instead of divergent as in other mammals, so that the zoological use of race was also inapplicable. The term should be dropped from the scientific vocabulary, since its implications

hindered correct investigation and evaluation of the facts.

Dr. Morant maintained that certain ascertained facts of anthropology could not be explained except on some theory of blending inheritance. He asked genetists for a pronouncement on the subject.

Professor Carr Saunders, speaking as a zoologist, maintained that there was no evidence for important genetic differences in intelligence between races, though racial differences in temperament probably exist.

Professor Ruggles Gates considered that the study of geographical races in mammals was relevant to anthropology. He believed that the four main groups of existing mankind should be regarded as separate species.

Professor Crew, as a pure genetist, denied the existence of human groups meriting the term races, and outlined the technique which should be adopted in giving a scientific description of the genetic differences between groups.

Professor Muller pointed out how certain apparently non-Mendelian features of human group-crosses could be reconciled with genetic principles.

The general impression left was that the rise of modern genetics is necessitating a thorough overhaul of the basic concepts and practical methods of racial anthropology, including perhaps the dropping of the term race itself. The pseudo-scientific political use of the concept in which linguistic terms like Aryan, cultural terms like Germanic, and genetic terms like Nordic are used synonymously so as to confuse the issue was generally deprecated.

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Cost of Milk Production

In the Agriculture section Mr. John Orr, dealing with the "Economics of feeding for milk," said that accounts kept on 619 farms in England and Wales for eleven months from November, 1934, to the end of September, 1935, showed that the cost of food was 62 per cent. of the total cost of producing milk. Farmers believed that grass was the cheapest food for milk production, but in spite of this few farmers had set themselves to get abundance of grass and to get it cheap. To measure with accuracy the advantage of improvement of grass management in terms of money would be a good service which economists might render to agriculture. There was a great deal to be said for using the plough to grow grass. On a Lancashire farm this summer, in eleven weeks a field of grass from 12 to 15 months old gave 300 gallons of milk an acre; another field with grass five years old gave 200 gallons an acre; another with grass three years old, which had lost root, gave 187 gallons. On the same farm another field sown with grass in April this year was grazed twice in the second half of July, and the yield of milk rose 8 per cent. on the second occasion. Growth was rapid compared with that of older grasses which had been grazed heavily for over three months.

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"Breeding for Milk Yield and Uniformity"

The above was the subject of a paper submitted by Mr. A. D. Buchanan Smith, of the University of Edinburgh Institute of Animal Genetics, to the Agriculture Section.

There could never be a best breed or best type of dairy cow, he said, though it was possible to discern leading types with various optimum yields which could be reckoned to be generally the most suitable to particular types of farming. Among a certain section of the agricultural community it was customary to decry the cow that was a phenomenal yielder of 3,000, or even nearly 4,000 gallons. There was, however, economic justification for such a type of high-powered animal, and, given certain circumstances, it might be the most remunerative type for the farmer to keep. But, putting this question on one side, if a somewhat more moderate yield—say 2,000 gallons—was desirable, then to get the breed type fixed there it was desirable to encourage the phenomenal yielder that her blood would raise the average of the breed and keep it there when it was reached, for the higher the yield the greater was the tendency to regression.

Phenomenal cows were thus to be encouraged. That in the past extraordinary yields had frequently been associated with animals unable to stay the course was no justification for believing that phenomenal yield was synonymous with a short life. Indeed, recent records of the heaviest milking breed, the British Friesian, already belied such statement. The deduction to be made was that it was essential to select not only for high milking capacity, but also for—to borrow a simile from the motoring world—a chassis worthy of the powerful engine of milk secretion. In other words, selection must also be made for sensible udders, good legs and feet, as well as robust constitution. Hence it was that the scientist heartily endorses lifetime rather than lactation yield as the basis of selection.

Generally speaking it was easier by means of adequate management and nutrition to increase the yield of a high than a low yielding cow. In other words, it was easier for the cowman to push the yield of a cow up from 1,500 to over 2,000 gallons than it was to increase a low yielder from 500 to 1,000 gallons. This increased the difficulty of selecting for high yielding cattle, and might account for the slow progress that some alleged was being made at present.

Whatever the type, in selecting the bull, it was essential to consider him from the point of view of whether the yields of his daughters were uniform or not. The future lay undoubtedly with the bull that transmitted uniformity. A breeder should not endeavour to fix too many points at once. He should do it step by step. If our breeding policy were organised on a national basis as it was in Russia, then certain herds would be famed for the excellence of certain characters, and other herds for other qualities. Thus a breeder having fixed certain desirable qualities in his own herd, could obtain a bull from another from which the faults in his own herd had been eliminated. Careful selection would thus enable the next desirable characteristic to be incorporated without the loss of those already fixed.

The market requirements of cattle at the present day were varied and there was no certainty of the future. The quickest way in which to adjust production was by the first cross. Hence, there was every justification for our variety in breeds. We did not want to standardise too much, for the tastes of the consuming public were fickle, and such fickleness was the one certainty in the outlook.

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CATTLE DISEASES IN THE ISLE OF MAN

Moving a supply vote for expenses in connection with the Cattle Diseases Act, a member of the Tynwald Court said that it would be noticed that the vote this year was slightly higher than last year, and what had brought that about was the appointment of a whole-time veterinary surgeon, who had functioned very efficiently since he was appointed. Last year there were

81 cattle reported as tuberculous, but out of 7,000 animals exported to England last year, not one was detained across the water as being a suspicious case, and that showed the thoroughness with which the Act has been administered.

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TUBERCULOSIS AND INHERITANCE

As part of the laboratory work in connection with a course in human biology in Johns Hopkins University, Baltimore, Professor Raymond Pearl initiated a study of family history records with reference to families in which tuberculosis had occurred. Analysis and discussion of the data have elicited some interesting results (*Z. Rassenkunde*, 3, 3). The records examined include 3,608 individuals in the classification of parents and children. Taking all the offspring together, 11·3 per cent. were tuberculous, which is in reasonable agreement with the known prevalence of tuberculosis in Baltimore at the time the records were taken. The families average between 4 and 4·6 children. Four types of mating were differentiated and the percentage of tuberculous offspring in each type noted. There were: Both parents tuberculous, 35·7 per cent.; father tuberculous, 14·0 per cent.; mother tuberculous, 13·0 per cent.; neither parent tuberculous, 8·3 per cent. The smoothness and regularity of the results are noteworthy. The incidence in the non-tuberculous parentage is a little more than half that of the tuberculous—non-tuberculous mating. The rates of the two latter types are essentially in agreement, as might be expected theoretically, if it is assumed that tuberculosis is neither a sex-linked nor a sex-limited phenomenon. Further, the full tuberculous mating gives an offspring incidence a little more than four times that from the full non-tuberculous mating. The regular increase in the offspring percentage incidence, as the amount of parental tuberculosis increases, seems impossible of rational explanation on any other basis than that of hereditary influence, as the risk of contact infection is not quantitatively doubled. The risk of infection as between the children of tuberculous and non-tuberculous parentage would seem greater than is indicated by the figures. It seems impossible, with the data at present available, to postulate any simple rational Mendelian formula that will accurately describe the results.—*Nature.*

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RESEARCH AND TEACHING IN UNIVERSITIES

We reproduce the following from a recent issue of *Nature*, as many of the observations made therein are just now highly apposite to the question of the proper staffing for the veterinary colleges.

One of the most impressive passages in the recent report of the University Grants Committee is that in which attention is directed to the opportunity of service before the universities to-day in training the right type of leader, competent to think strenuously about great issues of right or wrong, liberty and government, and to bring to the grave problems of to-day minds richly informed and unsleeping in the exercise of critical intelligence, and imaginatively alive to the human issues underlying the decisions they are called upon to make. In an age when appeals to mass hysteria often appear to be more successful than appeals to reason, it is of the utmost importance that a university training should enhance a man's equipment not only as a skilled worker but also as a member of society and a human being.

The desirability of closer contact between the universities and the life of the community was also emphasised in speeches at the banquet on June 29th in connection with the centenary celebrations of the University of London. Professor L. Cazamian, of the University of Paris, referred to the function of the university in developing the unselfish love of peace, and a creative instinct of fair play to all the nations. The slow victory of a ripe spirit of justice over the promptings of blood, life and force is a subject for noble pride that something of the will to power of past ages might be sacrificed to a new hope and a new faith.

In a speech on the same occasion, Sir James Barrett directed attention to the value of a university as a place where a problem could be discussed without being overlaid by political and financial considerations. A university, however, cannot speak in the collective sense, and if a professor speaks individually he is apt to be criticised if his notions do not agree with those of some of his hearers. Sir James Barrett suggested that the function of universities as a whole to meet the crying need of a world in constant travail is the production of men with balanced minds, organised intelligence and common sense.

This plea that the universities should no longer be regarded as unco-ordinated centres of specialised knowledge, but should come into closer contact with social problems and give an enlightened lead to the community independently of political parties, has frequently been advocated in different ways during recent years. Essentially it involves two separate questions. The first is the impartial study of social and economic questions, as has been carried out in recent years by the Research Section of the Department of Economics and Commerce at the University of Manchester under the leadership of Mr. John Jewkes. The second is the training of leaders for the community who possess the vision and personality to compel action along the lines indicated as a result of such investigations.

In regard to the first, Sir James Barrett suggested that some system of interlinked university research throughout the world, on the lines of that developed internally in the Commonwealth of Australia under the Council of Scientific and Industrial Research, is required. Without an educated public, however, it is almost impossible to ensure that the results of such investigations are fully utilised for the advantage of the community.

The problem is thus one of education and teaching as well as research or investigation, and the question of the right relation between teaching and research in the universities is one of the most important of those raised by the recent report of the University Grants Committee. It has since been discussed in a valuable article by Dr. R. Coulborn in the *Nineteenth Century*, and reference was made to the same problem by the Prime Minister in opening the Fifth Congress of Universities of the British Empire at Cambridge on July 14th.

Unquestionably one of our first needs is the re-orientation of research at the universities, and the institution of research in the biological sciences and the humanities, so that we may be in a better position to deal with the many social problems with which the unparalleled and disproportioned development of the physical sciences has confronted us. In such work the prime need is for creative research, and Dr. Coulborn does well to remind us that much research work can be, and is, undertaken without any preceding act of creation. In fact, the patience, dexterity and precision demanded in so much research to-day tend to blunt the enthusiasm, imagination or vision of the investigator. He tends to become a machine, and cannot

easily escape some warping of his mind or loss of humanity.

These effects of specialisation cause the research worker to lose interest in teaching, and it is for this reason rather than to free the investigator from other distractions, as Mr. Baldwin suggests, that some reconsideration of the close connection between research and teaching which at present exists in the universities is desirable. Undoubtedly it is true that the investigator of genius, the man with really creative ability, should be free from other claims on his time so far as possible. It is equally true that he is likely to be lacking in the patience which research demands, and will require a number of other workers to carry out the detailed work along the lines his genius suggests. It may also be true that his creative ability will be combined with a capacity for inspiring enthusiasm in others and thus for some measure of teaching, which is the fundamental reason for believing that the university teacher should himself be engaged in original work in his subject.

Such men, however, will always be the exceptions, and Dr. Coulborn's warning as to the damaging effects of research in university education cannot be lightly disregarded. He considers that the numbing influence of research on character destroys the teacher's ability to interest and inspire, while undergraduate studies are also usually planned on a basis of progressive narrowing down towards research minutiae instead of being such as to offer the student the deepest understanding of his subject. If we accept the view urged by Mr. C. H. A. Wilson, Vice-Chancellor of the University of Cambridge, at the recent Universities Congress, that the universities are national and imperial institutions, and that it is their duty to train against a background of pure scholarship men and women who are fitted to take a lead, or at any rate a creditable part, in the conduct of social, commercial and political administration, the question of the quality of the teaching given acquires primary importance.

The evidence cited by Dr. Coulborn suggests that our present practice of linking teaching and research is inefficient even from the point of view of research, and that much superior results would be obtained if the functions of research and teaching were entirely separated and made full-time occupations. Not only is it probable that teaching would be more effective and inspiring and more adapted to the social needs of the student if such a division were effected, but also it would be easier in the transition to secure a reorientation and direction of academic research in the fields in which it is most demanded by the needs of the community. Moreover, a check would be given to that untoward tendency for undergraduate training to approximate to a soul-destroying professional training instead of the training in scholarship, in strength of character, and in potentialities of good citizenship, which it should be the glory of a university to give as a preliminary foundation of professional training.

There need be no fear that such a separation of functions would lead to any debasement of research. On the contrary, it is more likely to enhance its repute if the conduct of research is a full-time activity of investigators appointed for the purpose rather than the part-time activity of a lecturer or an aspirant for a higher degree. The prestige of research could only be enhanced by being placed on a footing which would enable its real leaders and men of genius to direct and inspire the large army of patient investigators whose co-operation is so essential in any advance to-day.

One of the most important consequences of such a separation of functions would equally be the encouragement which could be given to the really great teacher with a genuine talent for exposition and inspiring others. Such teachers, though teaching may be their whole occupation, will never fail of that constant refreshment at the fountain heads of knowledge which is essential if their teaching is to retain its freshness and vitality. The present interrelation of research and teaching, in fact, has few more untoward consequences than the way in which it tends to diminish the prestige or status of such expositors who, whether within the walls of a university or in the nation at large, are one of the greatest needs to-day. Only through the work of sincere, able and fearless expositors can we hope that either the alumni of our universities will awake to the vastness of their opportunities of leadership and constructive service in the world to-day, or humanity at large realise how great are the benefits which the acceptance of such leadership could confer upon them. The separation of teaching from research in such ways as these may well advance the dignity of both, and enable the universities to make an ever-growing contribution to our national and imperial well-being. This service will be rendered alike through the provision of exact and impartial knowledge and analysis of the factors concerned in many of our grave social or economic problems to-day, and in the training and inspiring of those who can bring to bear upon them constructive criticism, moral courage, a wide vision and a keen sense of human values.

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IMPORTANCE OF HIGH-GRADE BREEDING

In a timely editorial article on the above subject, the *Farmers' Weekly* says: "Our pedigree breeders may take pardonable pride in the purchases, larger than ever this year, of British stock to found and replenish flocks and herds in overseas countries. The spectacular buying of sheep by the Russian Government (whose representatives have already spent over £15,000 on Lincoln, Romney, Hampshire Down and Oxford Down rams and ram lambs) is another example that foreign countries know where to apply when they want to improve their strains or to develop new breeds.

"Our breeders may also pleasantly reflect that these new buyers will, as others have done before them, come again in due time to prevent the progeny of the new stock reverting in type. The buyers can keep up the standard only by coming to Britain, and there is the prospect of good business ahead for some years. Our best breeds of beef, dairy cattle, sheep and pigs have populated the prairies and the plains. Look at the visitors' books of the great breeders and see where the buyers come from—every quarter of the world! Could any better testimony be given to the industry and skill of British stock breeders?

"But there is another side to the picture. Other countries, with our help, are breeding first-class stock, and the need for replenishment may not go on for ever. The Canadians have bred some of the world's best Clydesdales, the Americans have some of the finest Ayrshires, the Argentine and Australia are noted for their Shorthorns, Herefords and Angus, the New Zealanders for their Ayrshires, Shorthorns and Jerseys, and the Canadians for their Tamworths.

"The overseas breeders have not paid big prices as mere fanciers or collectors indulging in hobbies pay them; they are business men who are prepared also to face heavy transport

expenses and, in some cases, quarantine charges. They have been the best buyers of our stock, now they are continually improving their produce and are competing more fiercely with us, the only people who offer them an open door.

"If we are to meet that competition we must use only our best stock to improve our general standard. There is too great a difference between our two extremes, between the superlatively good and the deplorably bad. The Bull Licensing Act was a move in the right direction, but it is not sufficient to stop the use of bad bulls. More positive action is necessary to ensure the use of bulls of a higher standard, and here is scope not only for the Government but for the agricultural societies and the breed societies. The Livestock Improvement Scheme, sponsored by the Ministry of Agriculture, could be made a much more vital factor; the breed societies could crown their highly-gratifying show successes by bringing good sires within the reach of small farmers. Above all, the general policy of the Government must encourage all our producers to feel that they have something to work for, that the use of the best stock will have its certain reward."

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THE HOFIUS PROCESS OF MILK PRESERVATION

The following note has been communicated to the September issue of the *Journal of the Ministry of Agriculture* by Dr. A. T. R. Mattick, National Institute for Research in Dairying, Shinfield, near Reading.

The Hofius process for preserving milk, which is now in use in Germany and other Continental countries, is based on the fact that oxygen under pressure will kill or check the growth of bacteria.

The apparatus consists, briefly, of a strong stainless-steel cylinder, to which is attached a massive head fitted with the necessary valves for the admission of oxygen and for the withdrawal of the milk or cream as required for use. The milk for preservation is filled into the cylinder after the removal of the head. The latter is then replaced and screwed into position by means of a special spanner. All joints are gas tight and built to withstand pressure.

After the raw or pasteurised milk at 43° F. has been introduced, it is shaken thoroughly and the valves opened to release gases from the milk. Oxygen from an ordinary commercial cylinder is then admitted through the valve on the cylinder head, the milk again shaken, the pressure released to complete the displacement of milk gases—a fresh charge of oxygen admitted until the pressure in the gauge reaches ten atmospheres and the cylinder put into cold store at 43° F. The milk is then shaken daily to incorporate cream and distribute the gas, and can be withdrawn as required by merely releasing the discharge valve and receiving it into a container.

Under the conditions described, the milk remains in a sweet condition for weeks. At first the bacterial count decreases, and the acidity does not change. Eventually the acidity rises and the count gradually increases. The surviving flora tends to be monospecific, as only certain kinds of organisms appear to be capable of growing under these conditions. Coliform organisms are, apparently, unable to survive.

Advertiser's Announcement

New Vitamin Ration Discovery for Dogs

Countless experiments carried out by eminent scientists at a large laboratory in Hertfordshire have produced, it is believed, the most important contribution to canine feeding yet made.

It is a vitamin ration for dogs, containing in highly-concentrated powder form scientifically-balanced proportions of vitamins A, D and B, calcium, phosphoric acid, magnesium, charcoal and iron in a base of vegetable iodine.

It is claimed, among other things, that this vitamin ration provides definite resistance to germ diseases of all kinds among dogs, induces correct physical development and eliminates what has been the bane of dog-breeding for centuries—the risk of weakly litters.

Leading British dog-breeders are keenly interested in the new discovery, and the manufacturers, Messrs. Cooper, McDougall & Robertson, Ltd., are receiving hundreds of enquiries daily concerning it.

Diseases of Animals Acts
SUMMARY OF RETURNS

Period.	Anthrax.		Foot-and-Mouth Disease.		Parasitic§ Mange.		Sheep Scab.	Swine Fever.	
	Outbreaks confirmed.	Animals attacked.	Outbreaks confirmed.	Animals slaughtered as diseased or exposed to infection.	Outbreaks reported by the Local Authorities.	Animals attacked.	Outbreaks confirmed.	Outbreaks confirmed.	Swine slaughtered.
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Period 16th to 31st August, 1936	8	11	—	—	4	5	9	53	27
Corresponding period in									
1935	10	15	—	—	3	3	13	60	40
1934	17	28	3	361	4	4	31	41	28
1933	8	8	4	690	7	7	15	46	30
Total 1st January to 31st August, 1936	312	371	4	379	86	228	163	1,356	948
Corresponding period in									
1935	243	285	34	10,208	84	169	227	1,314	778
1934	264	301	5	454	98	160	409	1,079	675
1933	192	218	62	6,049	109	185	240	1,016	619

Note.—The figures for the current year are approximate only.

§ Excluding outbreaks in Army Horses.